What is claimed is:

1. A method of noninvasively measuring a concentration of a blood component, comprising:

(a) varying a thickness of a body part of a subject, measuring absorption spectrums at different thicknesses of the body part, obtaining a first differential absorption spectrum between the absorption spectrums measured at different thicknesses, actually measuring concentrations of the blood component, and establishing a statistical model using the first differential absorption spectrum and the actually measured concentrations; and

(b) estimating the concentration of the blood component using a second differential absorption spectrum obtained with respect to the body part based on the statistical model.

2. The method as claimed in claim 1, wherein (a) comprises:

(a1) determining an initial thickness of the body part of the subject;

(a2) increasing the thickness of the body part from the initial thickness to a first thickness and measuring a first absorption spectrum with respect to the body part;

(a3) increasing the thickness of the body part from the first thickness to a second thickness and measuring a second absorption spectrum with respect to the body part;

(a4) generating one of K first differential absorption spectrums between the first and second absorption spectrums;

(a5) obtaining the K first differential absorption spectrums by repeating operations (a2) through (a4) K times in correspondence with K concentrations of the blood component actually measured from the subject; and

(a6) establishing the statistical model of the blood component by performing multivariate statistical analysis on the K first differential absorption spectrums and the K concentrations actually measured.

3. The method as claimed in claim 2, wherein (b) comprises:

(b1) increasing the thickness of the body part from the initial thickness to the first thickness and measuring a third absorption spectrum with respect to the body part;

(b2) increasing the thickness of the body part from the first thickness to the second thickness and measuring a fourth absorption spectrum with respect to the body part;

(b3) generating the second differential absorption spectrum between the third and fourth absorption spectrums; and

(b4) estimating the concentration of the blood component using the second differential absorption spectrum generated in operation (b3) and the statistical model.

4. The method as claimed in claim 3, wherein a variation between the initial thickness and the first thickness is less than about 0.2 mm.

5. The method as claimed in claim 3, wherein a variation between the first thickness and the second thickness ranges from about 0.1 to 0.3 mm.

6. The method as claimed in claim 1, wherein (a) comprises:

(a1) determining an initial thickness of the body part of the subject;

(a2) increasing the thickness of the body part from the initial thickness to a first thickness and holding the state in standby for a predetermined period of time;

(a3) increasing the thickness of the body part from the first thickness to a second thickness and measuring a first absorption spectrum with respect to the body part;

(a4) increasing the thickness of the body part from the second thickness to a third thickness and measuring a second absorption spectrum with respect to the body part;

(a5) generating one of K first differential absorption spectrums between the first and second absorption spectrums;

(a6) obtaining the K first differential absorption spectrums by repeating operations (a2) through (a5) K times in correspondence with K concentrations of the blood component actually measured from the subject; and

(a7) establishing the statistical model of the blood component by performing multivariate statistical analysis on the K first differential absorption spectrums and the K concentrations actually measured.

7. The method as claimed in claim 6, wherein (b) comprises:

(b1) increasing the thickness of the body part from the initial thickness to the first thickness and holding the state in standby for the predetermined period of time;

(b2) increasing the thickness of the body part from the first thickness to the second thickness and measuring a third absorption spectrum with respect to the body part;

(b3) increasing the thickness of the body part from the second thickness to the third thickness and measuring a fourth absorption spectrum with respect to the body part;

(b4) generating the second differential absorption spectrum between the third and fourth absorption spectrums; and

(b5) estimating the concentration of the blood component using the second differential absorption spectrum generated in operation (b4) and the statistical model.

8. The method as claimed in claim 7, wherein the predetermined period of time ranges from about 30 to 180 seconds.

9. The method as claimed in claim 7, wherein a variation between the first thickness and the second thickness ranges from about 0.05 to 0.2 mm.

10. The method as claimed in claim 7, wherein a variation between the second thickness and the third thickness ranges from about 0.1 to 0.3 mm.

11. A computer readable recording medium having recorded therein a program for executing the method as claimed in claim 1.

12. An apparatus for noninvasively measuring a concentration of a blood component, comprising:

a light source that emits light;

a spectroscope that separates the light emitted from the light source into components of different wavelengths;

a body-machine interface unit, which is mounted on a body part of a subject, that radiates the light from the spectroscope onto the body part, collects light transmitted through the body part, varies a thickness of the body part according to a pressure applied to the body part, and secures the body part;

a detection unit that detects a first through a fourth absorption spectrum from the light collected by the body-machine interface unit; and

a signal processor that generates a signal for the body-machine interface unit to apply pressure to change the thickness of the body part, and estimates the concentration of a blood component from a second differential absorption spectrum obtained at the body part based on a statistical model of the blood component, the statistical model being established using a first differential absorption spectrum between the first and second absorption spectrums measured by the detection unit at different thicknesses of the body part and an actually measured concentration of the blood component.

13. The apparatus as claimed in claim 12, wherein the signal processor generates signals for increasingly varying the thickness of the body part from an initial thickness to a first thickness and then a second thickness in correspondence with the actually measured concentration,

obtains one of K first differential absorption spectrums between the first and second absorption spectrums measured from the body part at the first and second thicknesses, respectively, and performs multivariate statistical analysis on the K first differential absorption spectrums and K actually measured concentrations, thereby establishing the statistical model of the blood component.

14. The apparatus as claimed in claim 13, wherein the signal processor generates signals for increasingly varying the thickness of the body part from the initial thickness to the first thickness and then the second thickness, obtains the second differential absorption spectrum between the third absorption spectrum and the fourth absorption spectrum measured from the body part at the first and second thicknesses, respectively, and estimates the concentration of the blood component based on the statistical model.

15. The apparatus as claimed in claim 14, wherein a variation between the initial thickness and the first thickness is less than about 0.2 mm.

16. The apparatus as claimed in claim 14, wherein a variation between the first thickness and the second thickness ranges from about 0.1 to 0.3 mm.

17. The apparatus as claimed in claim 12, wherein the signal processor generates signals for increasingly varying the thickness of the body part from an initial thickness to a first thickness in correspondence with the actually measured concentration, holds the state in standby for a predetermined period of time, increasingly varies the thickness of the body part from the first thickness to a second thickness and then a third thickness, obtains one of K first differential absorption spectrums between the first and second absorption spectrums measured from the body part at the second and third thicknesses, respectively, and performs multivariate statistical analysis on the K first differential absorption spectrums and K actually measured concentrations, thereby establishing the statistical model of the blood component.

18. The apparatus as claimed in claim 17, wherein the signal processor generates signals for increasingly varying the thickness of the body part from the first thickness to the second thickness and then the third thickness, obtains the second differential absorption spectrum between the third absorption spectrum and the fourth absorption spectrum measured

from the body part at the second and third thicknesses, respectively, and estimates the concentration of the blood component based on the statistical model.

19. The apparatus as claimed in claim 18, wherein a variation between the first thickness and the second thickness ranges from about 0.05 to 0.2 mm.

20. The apparatus as claimed in claim 19, wherein a variation between the second thickness and the third thickness ranges from about 0.1 to 0.3 mm.

21. The apparatus as claimed in claim 12, wherein the body-machine interface unit comprises:

a beam guide portion transmitting light from the spectroscope;

a light receiver collecting light from the body part;

a holder attached to the light receiver; and

a securing/compressing member that secures the body part between the beam guide portion and the light receiver and varies the thickness of the body part by adjusting the pressure applied to the body part.